

The \$3 Phone Bill and Amateur Radio

Presented By
Alex Marko, KD6LPA

Agenda

- o Drawbacks of conventional phone
- o Alternative technologies
- o How it works
- o Amateur Radio technologies
- o Configuration
- o How to use it
- o Q&A



Monthly Statement

att.com

JOHN G DOE
123 ANY STREET
DULUTH GA 30097-1234

Page 1 of 2
Account Number 678 123-1234 545 1889
Billing Date Mar 05, 2010

Web Site att.com

Bill-At-A-Glance

Previous Bill	29.05
Payment Received 2-11 Thank You!	29.05CR
Adjustments	.00
Balance	.00
Current Charges	29.05

Total Amount Due \$29.05

Amount Due in Full by **Mar 27, 2010**

Billing Summary

Questions? Visit att.com	Page	
Plans and Services	1	29.05
1 888-757-6500		
PIN: 9999		
Repair Service:		
611		
Total Current Charges		29.05

AT&T Benefits

- Smarter TV. Better value. AT&T U-verse® . There has never been a better time to get AT&T U-verse® . Now you can get incredible channels and features at a better value than cable. Plus, you can take advantage of some of our best offers ever. Geographic and service restrictions apply. Call 1.866.291.2278 or go online at att.com/uversenow today!

Plans and Services

Monthly Service - Mar 5 thru Apr 4

1. Residential Line	17.55
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Surcharges and Other Fees

No.	Description	Quantity	
2.	Federal Universal Service Fee	1	.91
3.	Federal Subscriber Line Charge	1	6.50
Total Surcharges and Other Fees			7.41

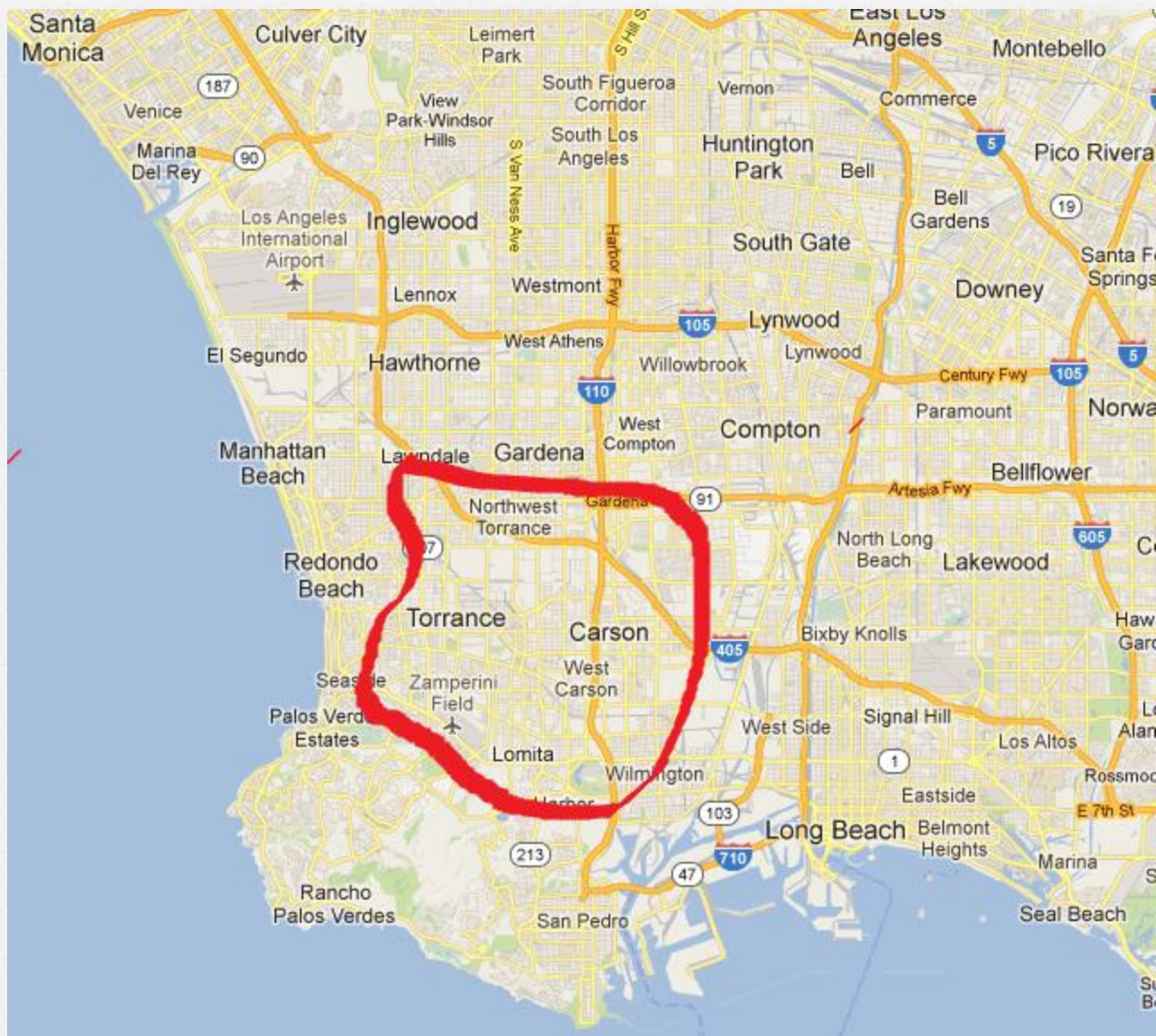
Government Fees and Taxes

No.	Description	Quantity	
4.	Federal Excise Tax		.74
5.	GA - State/Local Tax		1.27
6.	GA-Johns Creek Franchise Fee		.53
7.	Telecommunication Relay Svc Fund	1	.05
8.	Emergency 911 - Johnscreek	1	1.50
Total Government Fees and Taxes			4.09

Total Plans and Services 29.05

Reasons to abandon conventional phone line

- o Move to a new location
- o Monthly phone bill getting expensive
 - o According to a Massachusetts study, 17% of your phone bill is taxes and fees!
- o Additional charges includes:
 - o Federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen's compensation, local property taxes and local income taxes.



Reasons to keep land line

- Phone still works if internet signal dies
- Phone companies power telephones with their own electricity (and you have old phone)
- Ability to call 911
- Support pensions for past and present phone company employees 😊

What is VOIP?

- o Voice Over Internet Protocol
- o Audio signal is converted into data packets
- o Routed across the internet
- o Converted back to the original audio signal

What's a Packet?

- o Internet Packet is just like mailing a letter thru the post office!
- o ENVELOPE
 - o Who it's from
 - o Where it's going
- o CONTENTS OF ENVELOPE
 - o The letter inside the envelope

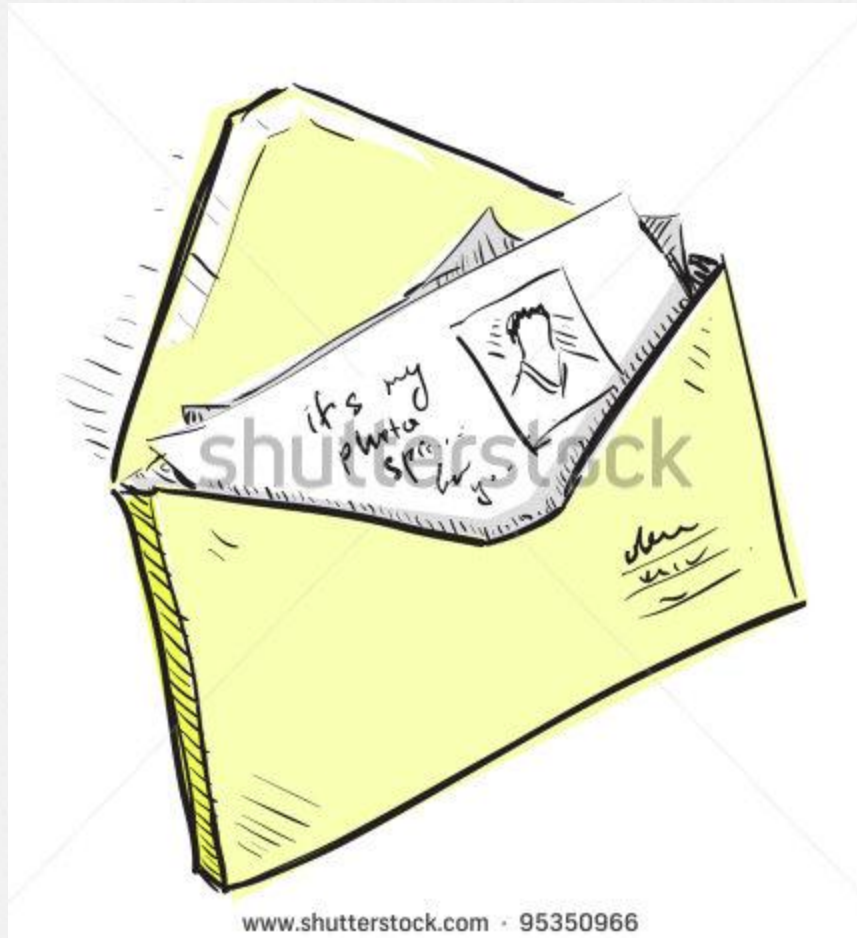
Packet Header

TIM HORTON
78 HARVEY ROAD
ST JOHN'S NL A1G 1A3
CANADA



CHAD UPTON
BROKEN SECRETS ORG
119 BROKEN WAY
SECRET BAY AK 99826
USA

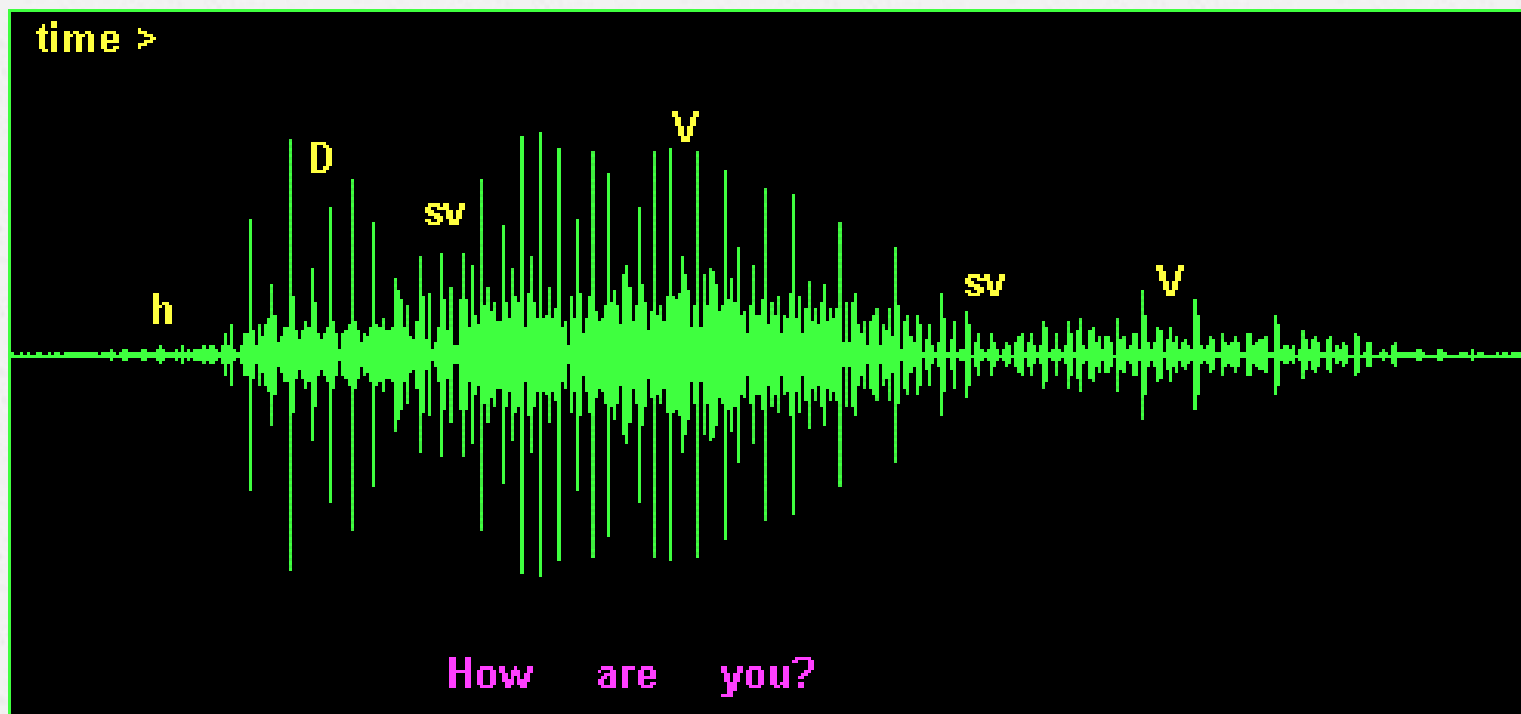
Packet Contents



Soundcard records audio

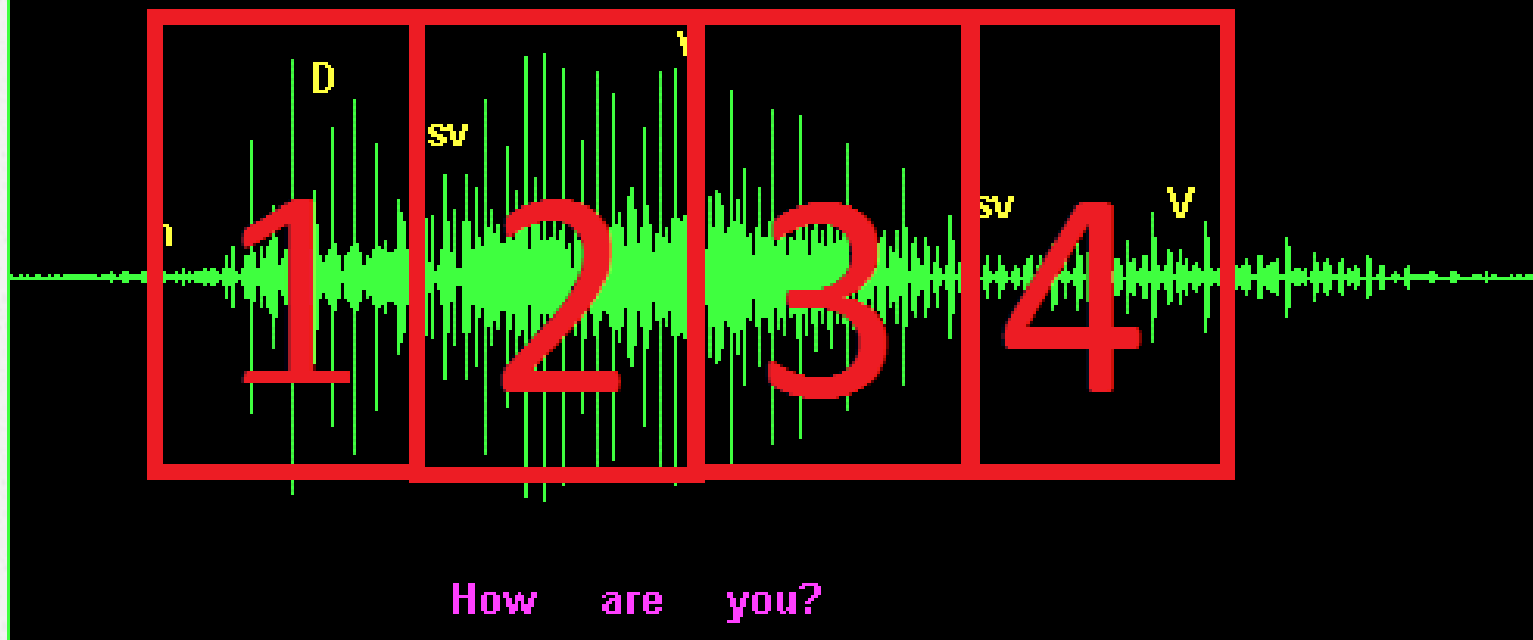


time >



How are you?

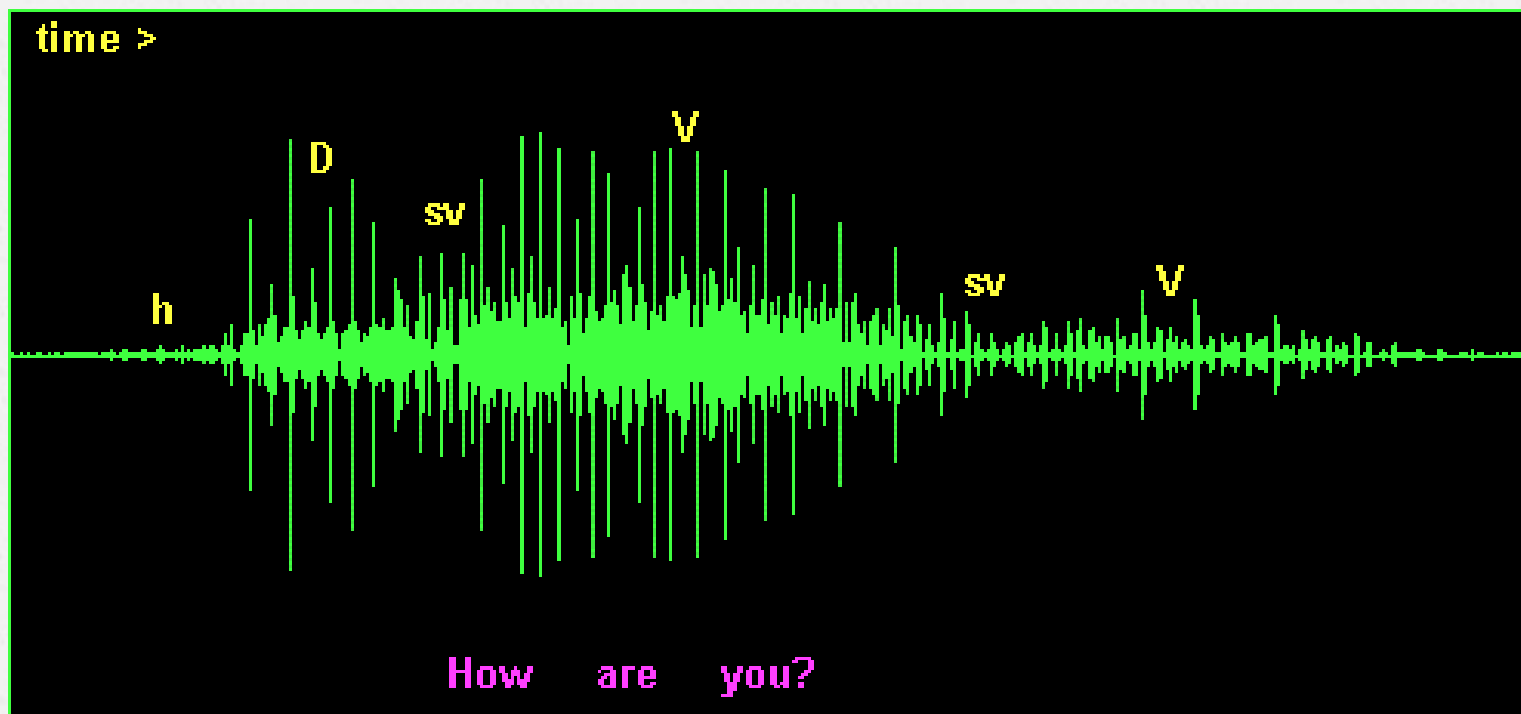
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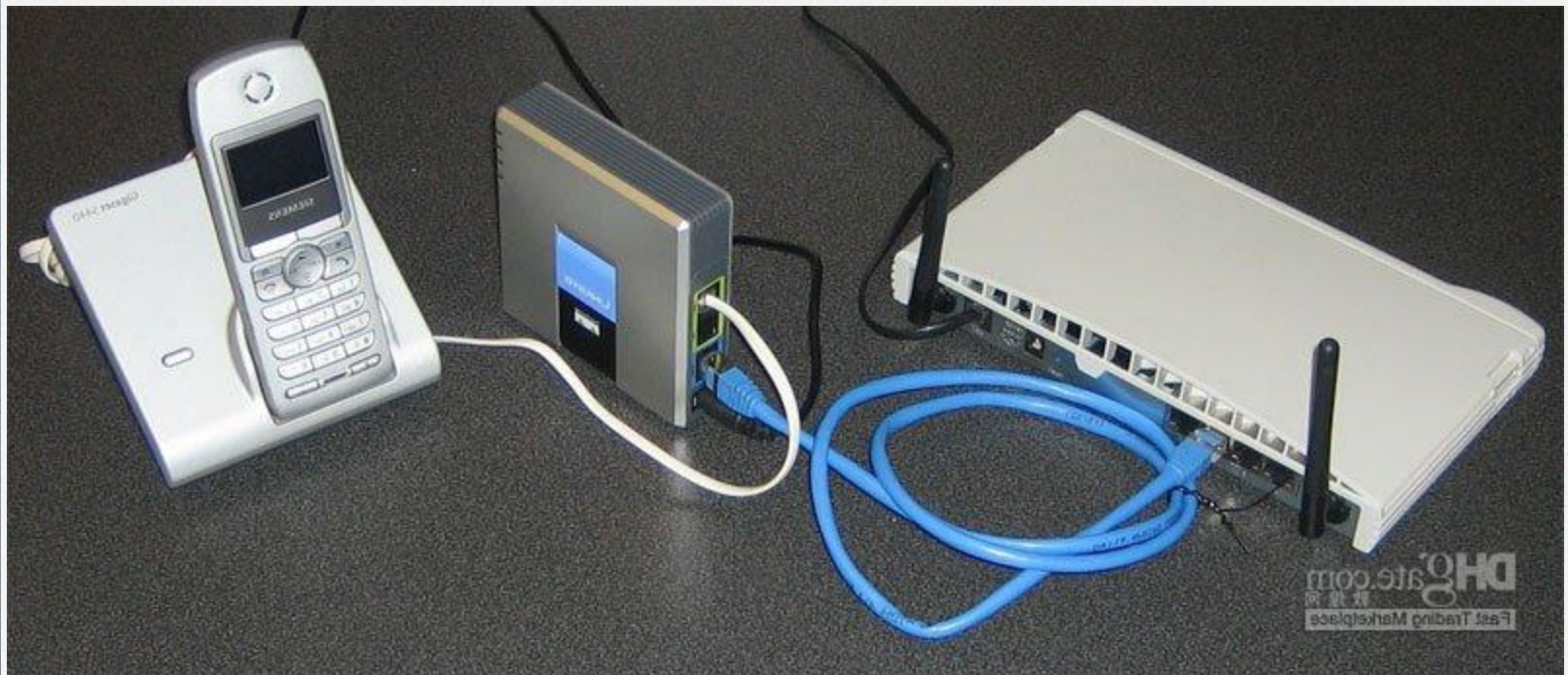
Packets Travel Across Internet



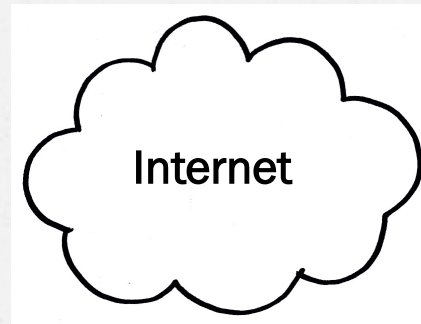
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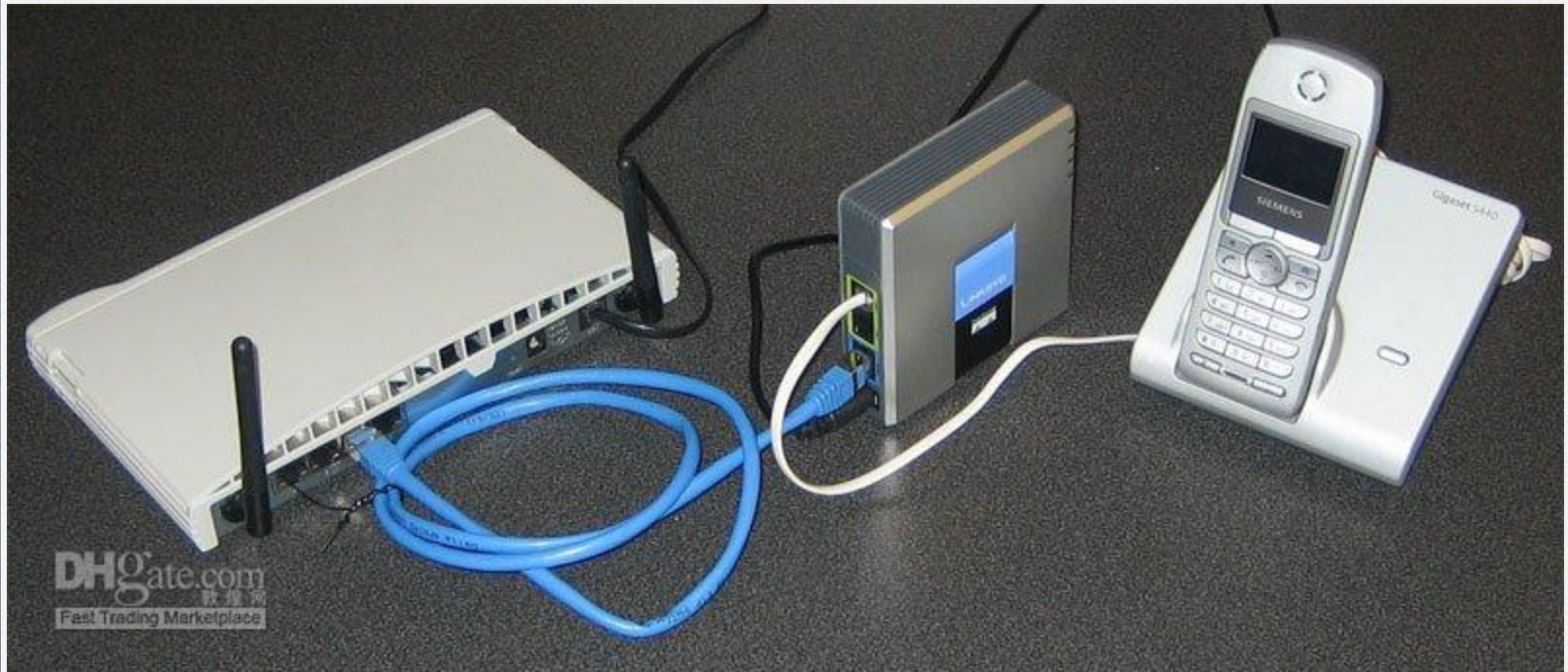
Phone → VoIP → Router



Router – Internet – Router



Router → VoIP → Phone



Common VOIP Providers

- o **Magic Jack**

- o Uses computer to convert Audio and VOIP

- o **Magic Jack Plus**

- o Uses stand alone device to convert Audio and VOIP

- o **<http://voip.ms>**

- o Requires Linksys SPA2102 device (\$55)
 - o Transfer phone number to VOIP service (\$25)
 - o Monthly fees (\$1.49 + actual calls)

Amateur Radio VOIP

- ◌ Echolink
- ◌ IRLP (Internet Radio Linking Project)
- ◌ D-STAR (Digital Smart Tech Amateur Radio)
- ◌ WIRES (Wide-coverage Internet Repeater Enhancement System)

Echolink extremely flexible

- o Echolink can work from any TCP/IP device!
 - o Computer
 - o PC
 - o Mac
 - o Linux
 - o virtually any computer platform
 - o Smart Phone
 - o Specific Kenwood Radios
 - o TM-V71 and TM-D710

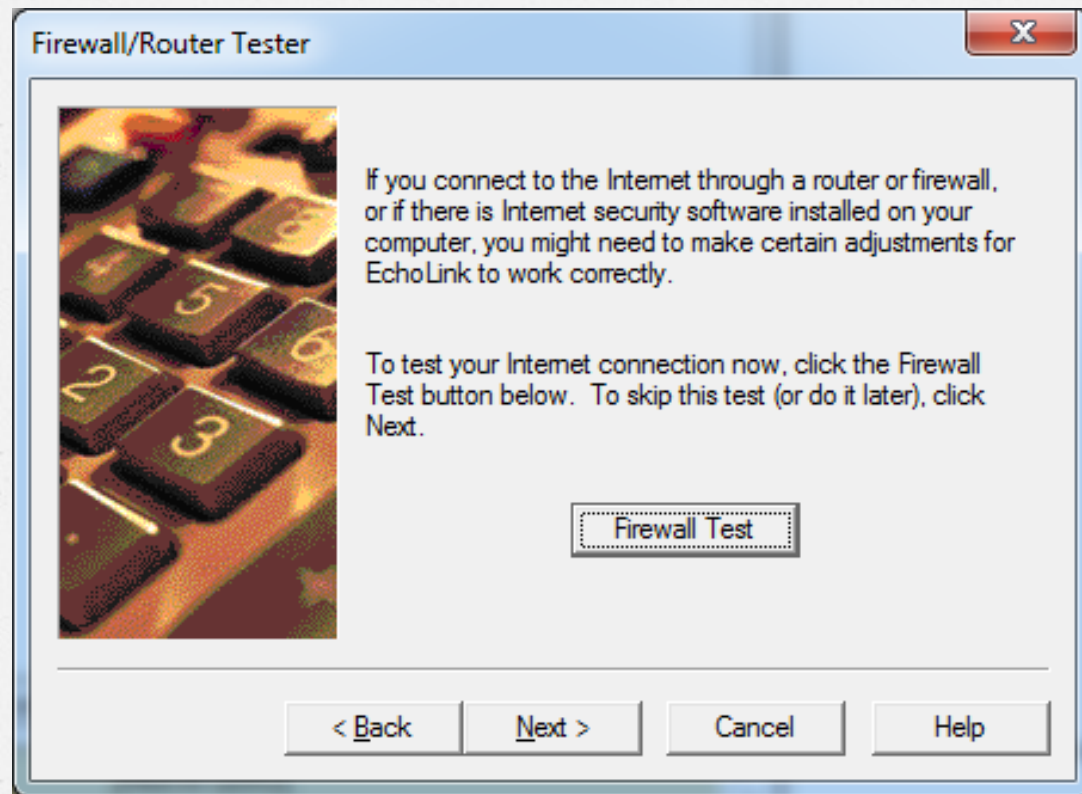
Setting up Echolink

- o 1) Goto <http://echolink.org>
- o 2) Click “Download” on the upper-left side
- o 3) Register first
 - o Your callsign must be validated first!
 - o Send copy of your license
 - o Call from a LAND-LINE registered to your name
 - o Pay \$1 charged to your credit card
 - o Ironically, VOIP phone calls will not work!

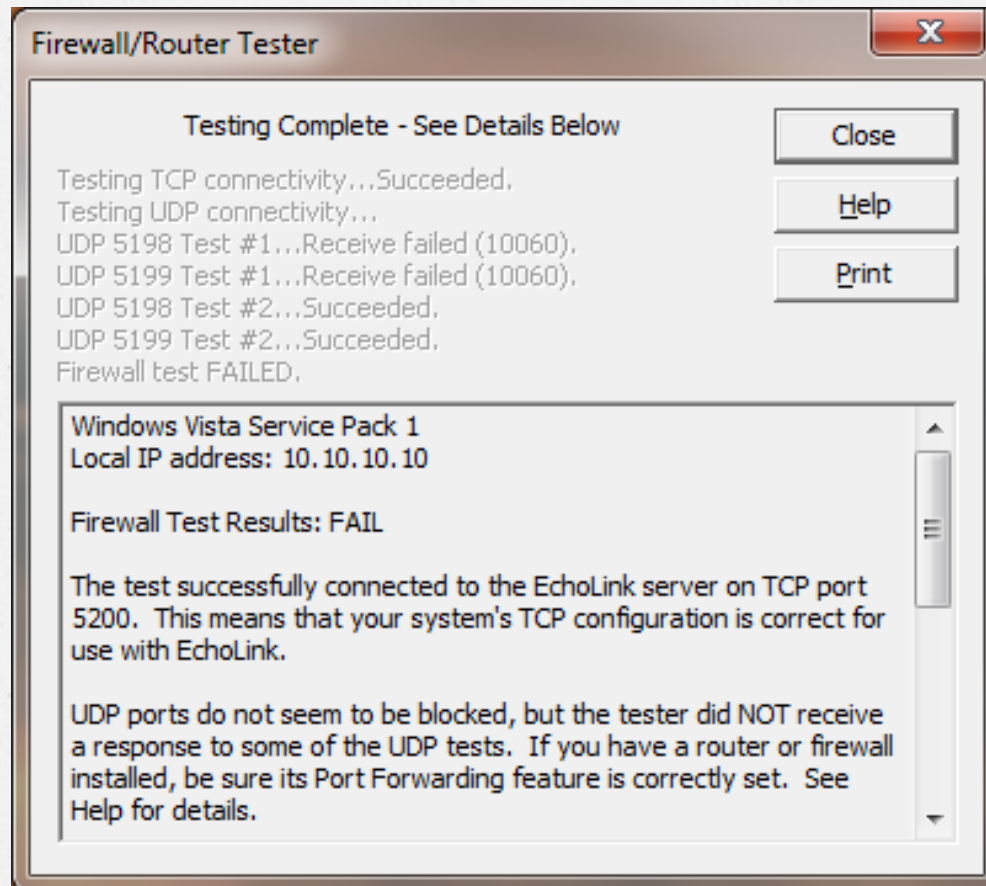
Echolink Network Config

- o If you have a router, you must configure the following routing rules:
- o PORT-FORWARD
 - o 5198 - to your PC's IP Address (UDP)
 - o 5199 - to your PC's IP Address (UDP)
 - o 5200 - to your PC's IP Address (TCP)

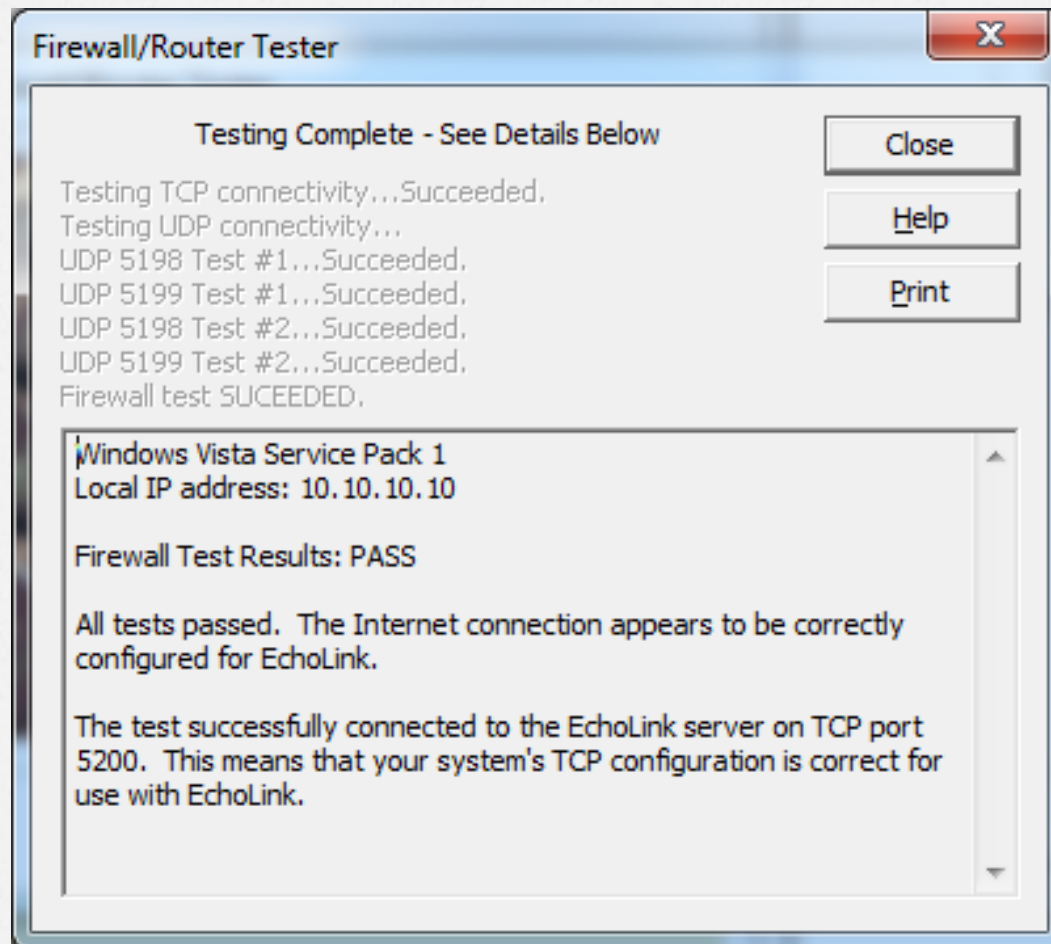
Firewall / Router Test



Before Router Rules



After Router Rules



Helpful Hints

- o If you have OLD version of Echolink
 - o DO NOT UN-INSTALL the old version
 - o Download the new version on top of old one!
- o If you reset your password, you need to wait 10-15 minutes before the Echolink system will recognize your new password.

Windows Firewall

- o For Windows Vista and Windows 7
 - o The new Echolink software automatically programs the Windows firewall with the routing rules.
 - o If you have a router, the same routing rules must be defined, but you must do it yourself.
 - o If you don't know how to do it, ask a club member for help!

Sample Echolink Screen

The screenshot displays the EchoLink K1RFD software interface. The main window shows a list of stations on the left and a detailed list of stations in the center. The status bar at the bottom indicates the user is connected to a conference.

Station List (Left Panel):

- Europe (593)
 - Andorra (2)
 - Austria (18)
 - Belgium (11)
 - Bosnia-Herz (2)
 - Bulgaria (4)
 - Croatia (5)
 - Czech Republic (7)
 - Denmark (6)
 - Finland (4)
 - France (21)
 - Germany (133)**
 - Greece (19)
 - Hungary (5)
 - Iceland (1)

Station List (Center Panel):

Station	Location/Description
DB0ANT-R	Wolfenbüttel 439.225MHz
DB0EIN-R	Einbeck JO41VU free
DB0EIS-R	Siegerland - DB0YS+0EIS
DB0EL-R	Munich Olympic Tower
DB0ERG-R	www.db0erg.de.vu
DB0FA-R	Fassberg - 438.600 MHz
DB0FCB-R	St. Arnold, 145.6125MHz
DB0FIG-R	Friedrichshafen
DB0GV-L	Frankfurt/Main Maintal
DB0GWD-R	Greifswald JO64QC
DB0GZ-R	Alfeld 439.350 Mhz
DB0HUS-L	Husum 144.975 (JO44ML)
DB0IGB-R	St. Ingbert / Saarland
DB0IK-R	nr. Arnstadt, Germany
DB0IO-R	DB0IO / Odenwald

Station Summary (Right Panel):

	Free	Busy	Total
Repeaters:	1178	65	1243
Links:	1076	369	1445
Users:	436	204	640
Conf Svrs:	189	0	189
Total:	2879	638	3517

Connection Statistics (Bottom Right Panel):

ECHOTEST - (confer... ip-68-178-200-46.ip.se...

Sent		Received	
Control Packets:	1	Control Packets:	0
Data Packets:	1	Data Packets:	45
Out of Sequence:	0	Out of Sequence:	0
Missed:	0	Missed:	0
Compensation:	0	Compensation:	0

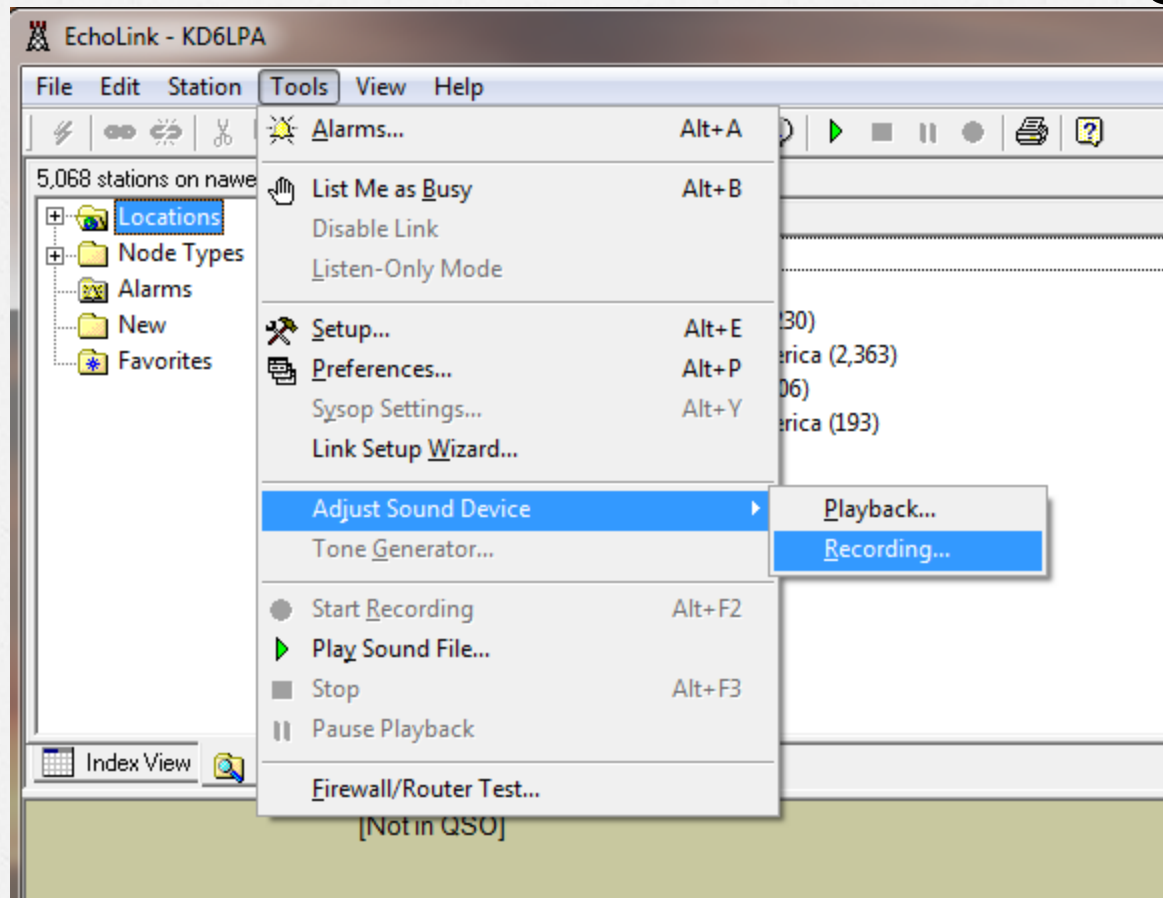
Status Bar:

Ready | Connected | RX

How do I talk?

- o Microphone's cost about \$15-\$30
- o For the same price, you can buy a webcam that has a built-in microphone!
 - o Webcam sits on monitor, doesn't take up space on desk
 - o Excellent audio quality
- o Most laptops today come with built-in webcam and microphone.

EchoLink Sound Config



How to make a QSO

- o Select a repeater around the world!
- o Press <SPACE> to turn microphone ON
- o Say what you want to say
- o Press <SPACE> again to turn it OFF
- o That's it!



Q&A